

strace - swiss army knife to trace, analyze, RT debug

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Outline

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RTFM

starting processes and attaching to them
output of `strace`

shaping output `strace`

filtering/selecting system calls

timing options

replaying process output

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- First “OpenSource” in school (Pet-2001/ CBM-3032)
- (sup)porting T_EX since 1986 at University of Tübingen
- VMS (1985) und UN*X (1987) at university
- “Never again INTEL CPUs” (1989/90 - Intel assembler)
- Linux 0.98.4 (1992, again Intel! ;-)
- XFree86 (S3, 1993-2001)
- science + computing ag in Tübingen since 2001
- Bosch Sensortec GmbH in Reutlingen since 2014
- . . .

RTFM

- `man strace`
- <https://strace.io/>
- talks from Dmitry Levin on FOSDEM, e.g.
https://archive.fosdem.org/2018/schedule/event/debugging_tools_strace_features/
https://archive.fosdem.org/2020/schedule/event/debugging_strace_modern/

starting processes and attaching to them

```
strace echo "Hello Prague"  
strace -p <PID>  
strace -f time echo "Hello Prague"  
strace -f -p <PID>
```

output of strace

on terminal or into file(s?)

```
strace tool
```

```
strace -o output tool
```

```
strace -f      -o output  tool
```

```
strace -f -f -o output  tool
```

```
strace -ff    -o output  tool
```

shaping output

```
strace -v tool
```

```
strace -s 9999 tool
```

```
strace -x -s9999 tool
```

```
strace -xx -s9999 tool
```

filtering/selecting system calls

```
strace -e file tool
```

```
strace -e read,write tool
```

```
strace -e open tool
```

```
strace -e open64 tool
```

```
strace -e /open tool
```

```
strace -e stat open tool
```

```
strace -e stat64 open tool
```

```
strace -e /stat open tool
```


timing options

```
strace -t      tool
strace -tt     tool
strace -ttt    tool
strace -T      tool
strace -r      tool
strace -tttTr  tool
```

replaying process output

```
strace -s9999 -r -e write -xx -fo pdflatex.strace time pdflatex elc-2023-strace-slides.tex
```

```
awk '/write\[([12]), / {  
    printf "usleep(%8d); ", $2*1e6 ;  
    sub("[0-9 .]*write", "write") ; sub(" = [0-9]*$", ";")  
    print  
}' pdflatex.strace > fake-pdflatex.ctrace
```

```
cat > fake-pdflatex.c <<EOF  
#include <unistd.h>
```

```
int main()  
{  
#include "fake-pdflatex.ctrace"  
    return 0;  
}  
EOF
```

```
make fake-pdflatex  
./fake-pdflatex
```

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